

**Uniformed Services University of the Health Sciences  
Center for Disaster and Humanitarian Assistance Medicine**



# Pediatric Nutrition Assessment Missions

## Panel Presentation

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Capt Laurie Flagg and LTJG Whitney Ellis

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# Current Projects:

- Honduras Pediatric Nutrition Assessment and Medical Training Mission
- Nutrition Assessments in Children Living in the Pacific Islands: A Capacity Building Approach



# Honduras Pediatric Nutrition Assessment and Medical Mission



- Conducted as Part of Military Medical Training
- Research focused: macro- and micro-nutrients, fortification, diet, economic, and health indicators
- Developed in collaboration with Honduran MoH reflecting their priorities
- Ages 6 mo-5 years, men and mothers



# Nutrition Assessments in Children Living in the Pacific Islands: A Capacity Building Approach

- Conducted as a collaborative research effort.
- Researched based project: macro- and micro-nutrients, lipid panel, glucose, economic, dietary intake, health and physical activity.
- Ages 1 – 10 years



# Project Focus

- Humanitarian Assistance
- Nutritional Assessments
- Policy Impact
- Capacity Building
- Research
- Joint and/or Combined
- Opportunity to Train Junior Officers



# Specific Aims



- Provide team member training
- Complete population based nutritional assessments
- Identify indicators associated with assessment outcomes
- Evaluate food fortification efforts
- Enhance and test handheld data collection tools/Satellite data to established website.

# Supporting Role of Junior Dietitians



- Team member
- Research assistant
- Data collection
- Consultant to assigned team
- Provide training as assigned
- Complete After-Action-Report
- Train others following the mission
- Presentations
- Make others aware of the RDs role in humanitarian assistance missions



# Pediatric Nutrition Assessment Process



- Training
- Cultural Awareness



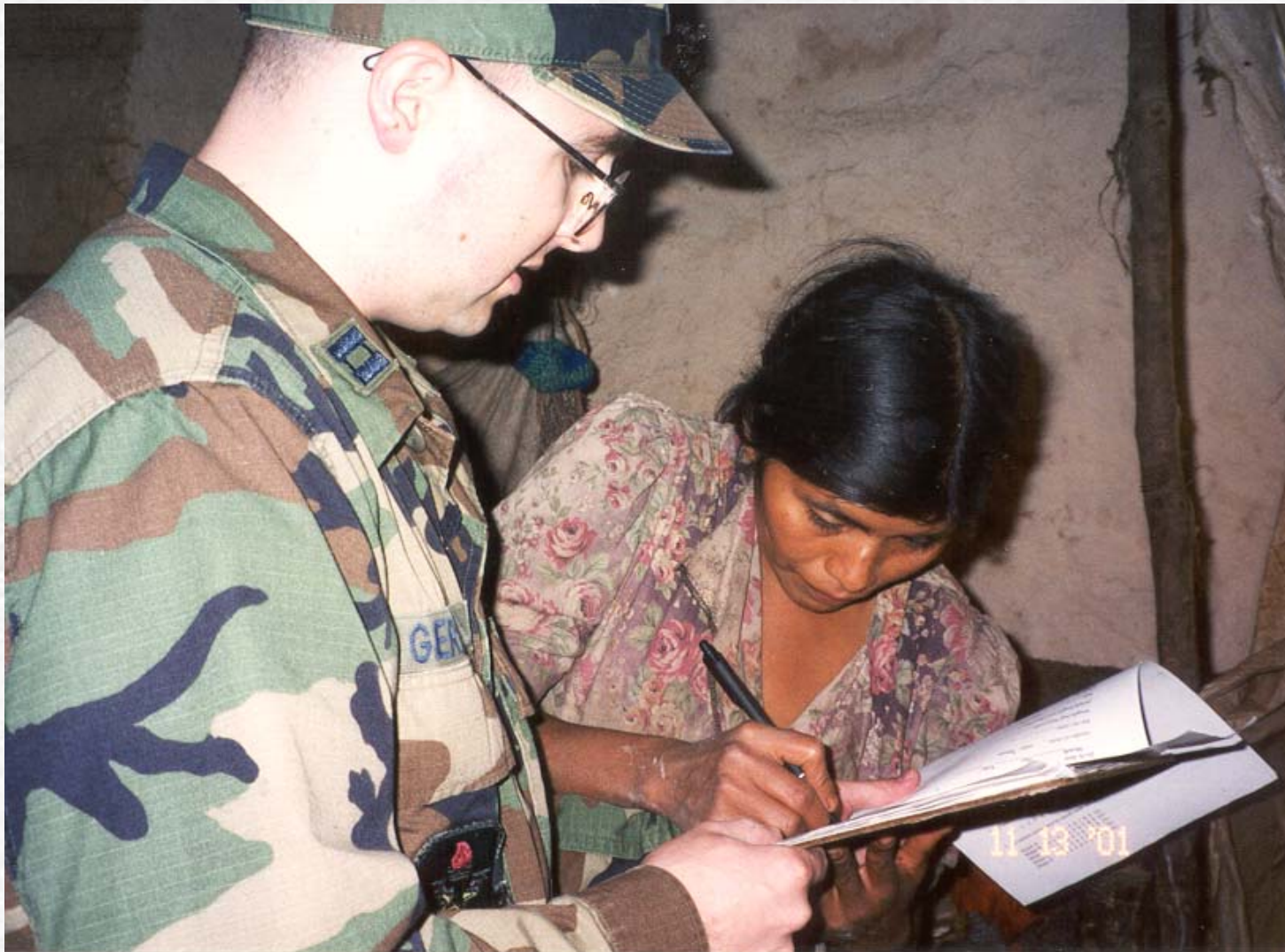


- Coordination with local health care personnel
- Capacity building



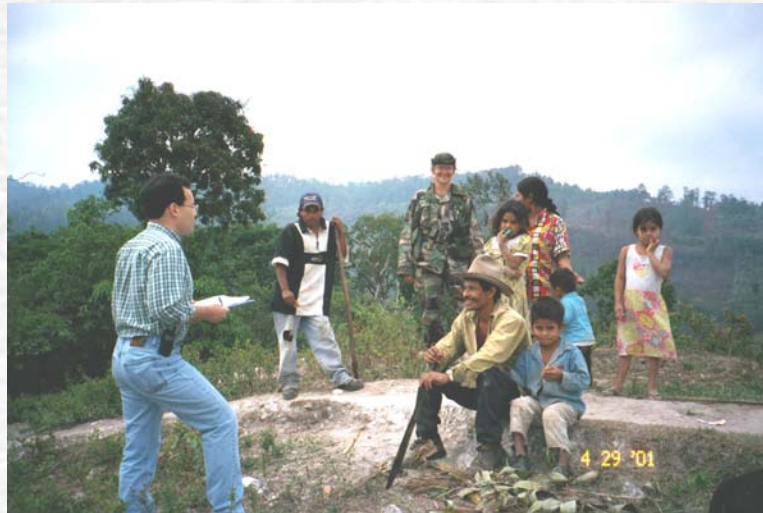


- Informed Consent





- Interview





- Clinical Assessment





- Anthropometrics



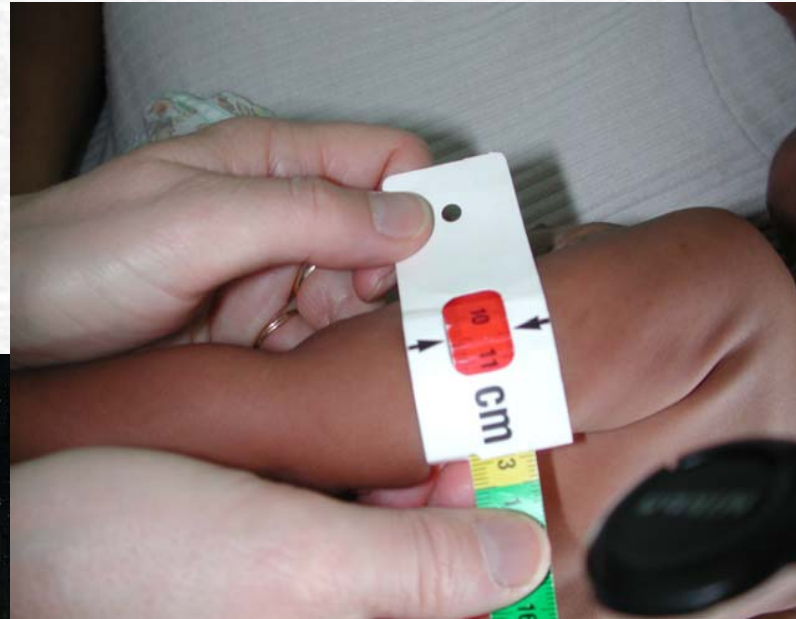


- Biochemical Assessment





- Diagnosis





- Treatment



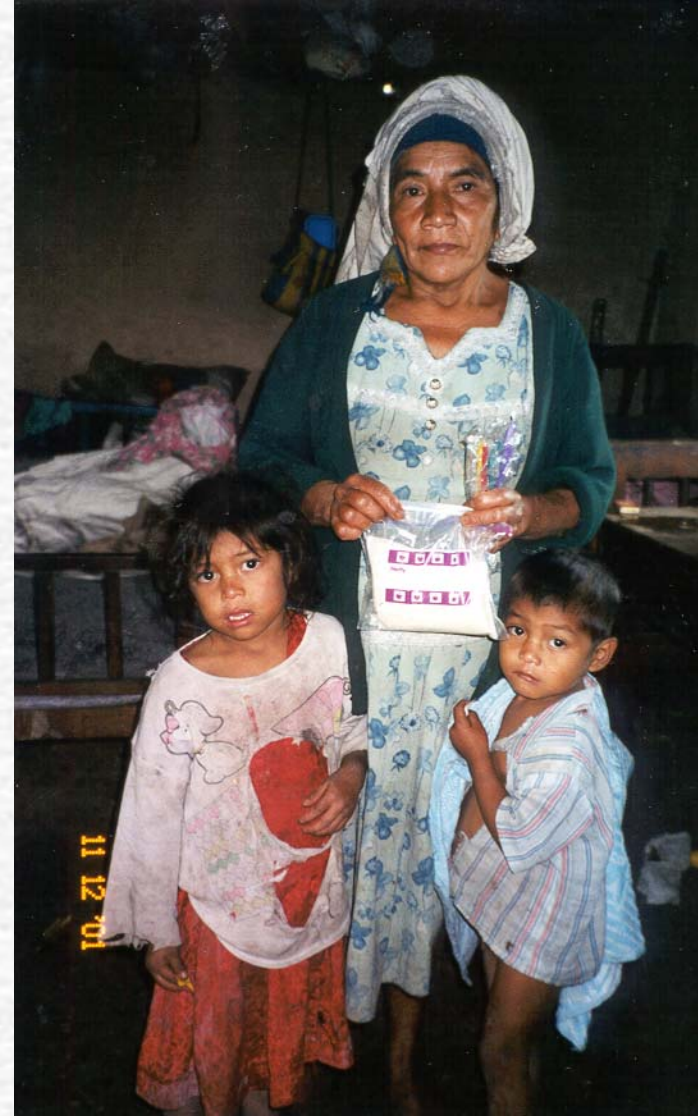


- Food Exchange/Fortification Analysis





- Participant Compensation





- Advance Technologies



- After Action Reports
- Data Analysis
- Research Reports





# Honduras: Household and Convenience Prevalence Data



	Household (%)	Convenience (%)
Stunting	67.61	48.09
Wasting	5.26	1.82
Anemia	33.33	24.9
Severe Anemia	14.29	8.43
Iron Deficiency	88.39	83.8
Iron Deficiency Anemia	30.92	27.02



# Honduras: Wheat Flour Samples

Survey Date	n	Iron > 4.5 mg/100gm
November 02*	0/42	None collected
April 03	0/40	None collected
Store**	1/1	0

\* 6 Samples of fortified corn meal ranged from 15.6-21.5 mg/100 gm

\*\* Flour sample taken from local store = 3.84 mg/100 gm





# Honduras: Household Sugar Samples

Survey Date	n	Retinol >0.5 mg/100gm
May 02*	35/39 (89.74%)	91.43% of samples tested
November 02**	14/42 (33.33%)	64.29% of samples tested

\* range: 0.17-1.37 mg/100gm

\*\* range: 0.35-3.07 mg/100gm

# Honduras: Household Salt Samples



Survey Date	n	Iodide *
April 03	36/40 (90%)	Total samples collected at the household level
April 03 analysis		
Household	34/36	94.4% met standard**
Store	2/2	100% met standard ***

\* Standard for salt analysis at the household: > 15mg/kg;  
standard for analysis at the store: 30-100 mg/kg

\*\* range: 0.59-95.8 mg/kg

\*\*\*range 45.3(San Miguel)-71.3(Santa Elena) mg/kg



# American Samoa: Anthropometric Data by Age Category and Gender



Category	MUAC <sup>1</sup>		BMI <sup>2</sup>		WHZ <sup>3</sup>		HAZ <sup>4</sup>	
	< -2	> +2	<5th	>95th	< -2	> +2	< -2	> +2
Age 1 to 5 yrs	0%	12%			0%	18%	3%	11%
Male	0%	13%			0%	14%	3%	10%
Female	0%	11%			0%	22%	3%	12%
Age 5 to 10 yr			1%	30%				
Male			0%	31%				
Female			1%	28%				

<sup>1</sup> Middle upper arm circumference for age

<sup>2</sup> Body mass index for age

<sup>3</sup> Weight-for-height Z-score

<sup>4</sup> Height-for-age Z-score

# American Samoa: Biochemical Analysis by Age Category and Gender



Category	Anemia <sup>1</sup>	ID <sup>2</sup>	Elevated Glucose <sup>3</sup>	Elevated Cholesterol	
				Total <sup>4</sup>	LDL <sup>5</sup>
<b>Age 1 to 5 yrs</b>	<b>35%</b>	<b>68%</b>			
<b>Male</b>	<b>37%</b>	<b>73%</b>			
<b>Female</b>	<b>33%</b>	<b>63%</b>			
<b>Age 5 to 10 yr</b>	<b>18%</b>		<b>9%</b>	<b>55%</b>	<b>27%</b>
<b>Male</b>	<b>16%</b>		<b>9%</b>	<b>53%</b>	<b>30%</b>
<b>Female</b>	<b>20%</b>		<b>10%</b>	<b>56%</b>	<b>24%</b>

<sup>1</sup> Hgb below WHO age-specific cutoff values: <11 g/dL, children < 5 years; <11.5g/dL, children ages 5-11 years.

<sup>2</sup> Iron Deficiency defined by zinc protoporphyrin >35 mg/gm assessed in children ages 1 to 5 years

<sup>3</sup> Blood glucose  $\geq$  120 mg/dL assessed in children ages 5 to 10 years

<sup>4</sup> Total blood cholesterol  $\geq$  200 mg/dL assessed in children ages 5 to 10 years

<sup>5</sup> LDL cholesterol  $\geq$  130 mg/dL assessed in children ages 5 to 10 years



- Continued and New Collaborations
- Additional Funding Proposals
- Mentor
- Teach
- Publish



# Humanitarian Assistance Role of the Military Dietitian



- Essential member of the initial assessment team
- Consultant to the Commander for all nutrition assessments, food aid, feeding programs and distribution issues
- Conduct and provide training on nutritional assessment and establishment of ration and feeding centers
- Monitor the nutrition situation and provide guidance to prevent nutritional wasting and micronutrient deficiencies
- Nutrition program development and ongoing evaluation
- Define food aid and distribution policy based on the situation





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# Please Hold Questions

LTJG Ellis

LT Riggs

LT Tarleton

Capt Flagg

LT Woodward

CPT Hunter

CPT Winn

MAJ Bovill

LTC Geisler

LTC Arroyo

LTC Sweet

LTC Podogil